MILLENNIUM CHALLENGE CORPORATION
UNITED STATES OF AMERICA

ARMENIA

MCC Learning from

"EVALUATION OF A RURAL ROAD REHABILITATION PROJECT IN ARMENIA"

MATHEMATICA, MARCH 2015

MCC has identified the following programmatic and evaluation lessons based on the Evaluation of a Rural Road Rehabilitation Project in Armenia. Several key lessons learned from this evaluation contribute to a broad set of lessons derived from other roads evaluations and the findings of the Transport Sector Practice Group's internal reviews.

PROGRAMMATIC LESSONS

- The roads project selection process should include an upfront national or area-wide road network analysis based on selected criteria such as traffic volume, IRI and other parameters, in order to prioritize potential road investments that are proven to be economically viable.
- It is important to consider alternative interventions that may prove to be relatively more cost effective and economically viable than simply paving a road.
- It is critical to comprehensively address policy and institutional constraints in road maintenance as well as seek assurances from the partner countries that the necessary mechanisms to ensure sustainability of their existing roadway network are in place prior to MCC committing to a capital-intensive road investment project.
- MCC recognizes the need to better understand actual road maintenance practices and their effects on the long-term costs and benefits of roads. Accordingly, MCC is planning a series of country- specific road maintenance studies, which will be used to improve both the economic assessment of road investments and, where feasible, influence actual road maintenance planning and execution in partner countries.
- Project teams must ensure complete and high quality data is collected both for the Highway Development and Management (HDM-4)/Roads Economic Decision (RED) ERR modeling purposes that feed into project selection and design, and for M&E purposes during and after implementation. The HDM-4/RED models should be based on fully developed feasibility studies that provide accurate cost and time estimates and other reliable technical inputs. They must also be well developed and calibrated at the feasibility study stage and continue to be updated as costs and other design parameters change throughout the construction stages and post-project completion.

- The value of roads investments can be optimized by enforcing standards for design review by technical experts and quality assurance and control requirements. Roads teams should also consider alternative forms of engineering contracts and project delivery systems that may improve the quality of contractor feasibility, design and supervision.

EVALUATION LESSONS

- *Base evaluation decisions on a clear program logic.* The Armenia roads rehabilitation was designed to improve the economic performance of the agricultural sector; however, the initial program logic was fairly vague about the pathways through which this would occur. In addition, there was limited evidence available on which to base the original program logic. This made the evaluation design more challenging as the specific outcomes to be assessed were defined in general terms, and there were no clear theories about the expected timing of changes in those outcomes. The decision of when and what data should be collected should be driven by a clear program logic that underlies the investment decision.

- *Set realistic time horizons and keep data collection plans flexible.* Often there are delays in large infrastructure projects. The data collection plan for the Armenia roads project was agreed upon early in the compact with the National Statistical Service of the Republic of Armenia. Data collection proceeded as planned, but due to unforeseen events in Armenia, there were only 1 to 2 years after road rehabilitation before final data collection took place. This limits the learning from the evaluation as it is not clear if the lack of impact on medium and long term outcomes is due to the limited exposure period or if the road rehabilitation really had a negligible impact on household well-being. From the beginning, implementers and evaluators should build into the evaluation design actions for mitigating risk to the evaluation associated with delays in implementation.

- *Ensure sufficient statistical power.* The evaluation included a small number of road sections – 27 in the treatment group and 29 in the comparison group. Since there is intra-cluster correlation amongst households located around any one road section, the statistical power of the evaluation was limited. As a result, it is challenging to interpret the results for the medium and long term outcomes. Was there really very little impact or were the impacts just not as large as the minimum detectable effects, which for many medium and long term variables were quite high. The weak statistical power was due to two main factors: (1) a small number of road sections actually being rehabilitated and (2) design of the evaluation around an existing data source which limited the number of road sections covered and the sample size. In the future, before investing significant resources into an evaluation, MCC should ensure that there will be sufficient statistical power for measuring realistic changes in key outcomes. To achieve this goal, it may be productive to for an evaluation to cover similar programs in multiple countries rather than for each evaluation to only examine one country at a time. Many of these lessons are similar to those that MCC has learned from previous evaluations. As a result, MCC has already adjusted its evaluation practices to include a formal review process for evaluations, an evaluation risk assessment, and use of standardized evaluation templates. The new process also requires substantive review and clearance of key evaluation documents by sector specialists in order to incorporate feedback on the technical and factual accuracy of evaluation plans.